UMBRELLA WITH COOLING DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention generally relates to the field of large-sized sun-shading umbrellas and in particular to an umbrella incorporating a cooling device that generates and sprays mists into a space under of a canopy of the umbrella for cooling the space under the canopy.

2. The Related Art

[0002] A large-sized sun-shading umbrella, such as a garden umbrella and a beach umbrella, is often fixed on a heavy base or fit into a center hole defined in a table surface, or inserted into the ground to hold the umbrella in an upright configuration. The umbrella has a canopy that can be opened to provide a sun-shaded surface of large area.

[0003] However, in case of intense sun light, together with dry air, the canopy of the umbrella, although effective in providing a sun-shaded area, is not able to eliminate the hot and dry feeling in the space under the canopy. This is often observed in beach umbrellas or even garden umbrellas.

[0004] Thus, the present invention is aimed to provide an umbrella with a cooling device to reduce the temperature of the space under the canopy.

SUMMARY OF THE INVENTION

[0005] Thus, a primary objective of the present invention is to provide an umbrella comprising a cooling device for overcoming the likely high temperature under a canopy of the umbrella.

[0006] Another object of the present invention is to provide an umbrella having a cooling device of simple structure, which emits mists to lower down surrounding temperature under the umbrella canopy.

[0007] To achieve the above objectives, in accordance with the present invention, there is provided an umbrella comprising an upright central post along which a runner is movable. A crown is mounted to an upper end of the central post. A plurality of ribs is pivoted to and radially extending from the crown and each rib is linked to and driven by a stretcher having opposite ends pivoted to the runner and the rib respectively. A canopy is attached to and supported by the ribs whereby when the runner moves upward/downward along the central post, the canopy is selectively opened/closed. A cooling device comprises a cylindrical casing partly constituting the central post but having a larger diameter defining an interior space in which a water tank containing an amount of water and a mist generator receiving water from the water tank and generating mist are accommodated. A tube conveys the mist to an outlet nozzle that is formed in the casing to direct the mist to a space under the canopy for cooling purposes.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The present invention will be apparent to those skilled in the art by reading the following description of a preferred embodiment thereof, with reference to the attached drawings, in which:

[0009] Figure 1 is a side elevational view of an umbrella constructed in accordance with the present invention with a canopy shown in phantom lines;

[0010] Figure 2 is an enlarged side elevational view of a cooling device incorporated in the umbrella of the present invention; and

[0011] Figure 3 is a cross-sectional view of the cooling device in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0012] With reference to the drawings and in particular to Figure 1, an umbrella constructed in accordance with the present invention comprises an umbrella frame comprised of a central post constituted by a lower section 10 and an upper section 11, a runner 12 slidable along the lower section 10 of the central post, a crown 13 mounted to an upper end of the upper section 11, a plurality of ribs 15 each having an inner end pivoted to the crown 13 and radially extending from the crown 13 to support a canopy 16 and a stretcher 14 having opposite ends pivoted to the runner 12 and substantially a middle portion of each rib 15 whereby the movement of the runner 12 along the lower section 10 in upward/downward direction causes the stretchers 14 to drive the ribs 15 upwards/downwards thereby selectively opening/closing the canopy 16. The umbrella frame and the operation thereof are exactly the same as those of the regular umbrellas and thus no further detail is needed.

[0013] Also referring to Figures 2 and 3, the umbrella of the present invention comprises a cooling device, generally designated with reference numeral 20, mounted to the upper section 11 of the central post at a location below the crown 13. The cooling device 20 comprises a cylindrical casing 21 that is fixed to and constitutes partly the upper section 11 of the central post. If desired, the casing 21 may be expanded and having a diameter greater than that of the central post thereby defining an interior space of a sufficient volume to accommodate a water container 22 that contains an amount of water and a mist generator 25 that receives water from the water container 22 and generate a mist of the water. The cooling device 20 further comprises at least one tube 26, serving as a mist passage, extending from the mist generator 25 to the casing 21 and communicating a mist outlet 27 formed on the wall of the casing 21 for conveying the mist outside the casing and into a space under the canopy 16. Preferably, the mist outlet 27 comprises a nozzle for directing the mist toward a desired location inside the space under the canopy 16.

[0014] The water container 22 comprises a water inlet 23, preferably selectively closed by a removable cap (not labeled). The water inlet 23 extends beyond the casing 21 for replenishment of water into the water container 22. A water level

indicator 24 is provided and can be observed outside the casing 21 for visual inspection of the amount of water residual in the water container 22 after operations.

[0015] The mist generator 25 comprises an electrically driven device (not shown) that is powered by an external power source. A power cord 28 is connected to the mist generator 25 and forms a plug at a distal end thereof for selective connection with the external power source, such as a wall outlet of an electric main. A power switch 29 is mounted on the power cord 28 to selectively transmit electrical power received from the plug to the mist generator 25. Alternatively, the mist generator 25 is powered by a direct current power source, such as a battery set (not shown), rather than the alternate current power source through the power cord 28. The mist generator 25 is constructed to receive water from the water container 22 through for example a hose connected between the mist generator 25 and the water container 22 and generates and supplies atomized water in the form of mist through the tube 26 to the mist outlet 27. The mist outlet 27 sprays the mist outwards.

[0016] The mist outlet 27 is configured to direct the mist toward the canopy 16 and distributed within the atmosphere under the canopy 16. Continuously spraying mist into the space under the canopy 16 effectively lowers down the temperature of the air under the canopy 16 and makes the space under the canopy 16 cooled and comfortable.

[0017] As illustrated in Figure 1, an opening/closing mechanism 18 is mounted to the lower section 10 of the central post to control the opening/closing operation of the canopy 16. The opening/closing mechanism 18 comprises a rope or wire (not shown) that is movably accommodated in and extending through a tubular segment of the lower section 10 of the central post and a crank arm 17 that can be manually operated as shown in the drawings to wind/unwind the rope on a reel (not shown) so as to drive the runner 12 and thus opening/closing the canopy 16.

[0018] The lower section 10 of the central post is fixed to and supported by a heavy base 19.

[0020] In case a battery set is selected as the power source for the mist generator 25, the battery set can be accommodated in the casing 21 that has a large diameter or inside either one of the upper and lower sections 11, 10 of the central post. In this case, the power switch 29 can be mounted directly to the upper or lower section 11, 10 and no power cord 28 is needed.

[0021] Although the present invention has been described with reference to the preferred embodiment thereof, it is apparent to those skilled in the art that a variety of modifications and changes may be made without departing from the scope of the present invention which is intended to be defined by the appended claims.